Theology of Evolution

By E. D. COPE, A.M., Ph.D.

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A LECTURE

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THE task, my friends, which I have before me this evening, is, as you can readily understand, one of considerable difficulty. I cannot pretend to do anything more in the short time allowed to us, than give a very slight sketch of what can be positively affirmed from the scientific standpoint with regard to the theories which constitute the theologies of the present day.

THEOLOGY AND RELIGION

In the outset, for the sake of clearness, I would make a distinction between theology and religion. Religion, as conceived by the popular mind, includes three very diverse classes of subjects. One of these classes is the theoretical part—the attempted explanation of the order of things, the why and how things are, and the whereunto they tend. It includes, in fact, from this standpoint, a

general philosophy, cosmogony and theogony. It is an attempted explanation, and as such belongs really to the department of science, so far as it can be understood and accurately stated and defined.

Then it includes, secondly, the operations of the human "heart"; the affairs of the heart, matters of faith, questions of feeling, our hopes and fears, anxieties and wishes with regard to one or more supernatural beings, including all of that peculiar instinct which belongs to man everywhere and all over the world, which makes him look upwards, as well as downwards, towards what we call the unknown, or what some have been pleased to call the unknowable. All of this falls within the metaphysical department of the affections or of the emotions.

The third department is that of ethics—the practical question of conduct between man and man; of good conduct and of bad conduct. As such, this belongs, not to the department of science, but to the department of applied science in a large sense, or that to which arts pertain.

The essential part of religion, which is peculiar to itself, pertains to the affectional part of the mind. It is that which is universal or nearly so, so far as we know, in the human species. That is not what I propose to speak about to-night, except incidentally. A great

many persons here are better acquainted with that subject than I am. People who have lived long, and have exercised their faculties, may know more about it than those who have experienced less, or for a shorter time.

SCIENCE AND RELIGION

But science can only consider matters of fact, and questions of explanation. In this field it attempts to show why things are as we find them, and, if possible, what the probabilities of a future life and the possible nature of beings outside of ourselves and invisible to us, may be, and, in a word, it furnishes, or ought to furnish, a good deal of information, which may have an important effect upon our actions. Because if a man does not believe that there is any God, he may act differently from that man who believes there is a God. If a man does not believe in a future existence or immortality, he will perhaps act differently from that man who does. Some will act in one way, some in another. I do not say in what way each one will act under similar circumstances; but they will certainly have different motives for their actions.

The task of attempting to philosophize or explain in this line is a very thankless one. The world has been full of explanations ever since man came on the scene;

and the only advantage we have in this day over our predecessors in this direction is, that we have accumulated some knowledge of the material universe and of our own minds, which serves very usefully in this connection, and for this purpose. And it is only because that is the case, that I venture to say anything about it to-night.

The difficulty is increased by the fact that the majority of scientific men avoid the subject. They know how little we all know about it; and they either look for light to the future exclusively, or they reject it altogether, or treat it with considerable inhospitality, to say the least of it. On the other hand, the adherents of the numerous theologies of the world are notoriously intolerant of those to which they are not attached; mostly agreeing in but one thing, and that is, in resistance to a rational treatment of the question. I beg my audience to bear in mind these facts, as well as the inherent difficulties of the subject.

However, there is no kind of doubt that knowledge will increase as time passes on; and that the opposing sentiments professed by scientific people and those professed by religious people—whether the former be partly religious, and the latter sometimes partly scientific or not—will some day be reconciled. There is a middle ground which will be discovered—a basis

of truth on which both can stand; and when that is found, it will constitute a new form of theology. Not that I think there will be any change in the nature of religion, but there will be in theology. And I make free to say that I suppose this is one of the very few places in this city belonging to an existing denomination, where such an assertion could be made without serious objection. You see, therefore, how highly I appreciate the honor and kindness of yourselves and your most excellent pastor.

EVOLUTION

In the first place, there are two foundation propositions on which scientific men generally stand to-day, upon which any theology, or cosmogony, or theogony must be constructed. These are the two separate and distinct doctrines of Evolution and Realism.

Among thinkers there is no difference of opinion, or but little, upon the former of these propositions. Evolution means that mankind, and all other living organic beings, are the result of a long continued process of change due to complicated forces which have bent the direction of a progressive growth to the results as we now find them. This is also held by physicists with regard to the inorganic world. The nebular hypothesis,

with which you are more or less familiar,—the evolution of worlds from nebulous matter, etc., is a form of it. There is a good deal of evidence in favor of that proposition. There is also a large school of psychologists who hold the same thing to be true in regard to the mind of man.

So this doctrine of evolution takes in inorganic nature, organic nature, and spiritual nature. If you please, I will not again use the term "spiritual" because "mental" covers the meaning conveyed, and I will let that do, until we discover some distinction between spirit and mind. Mental evolution then is a part of the general proposition.

Of the truth of this view, so far as concerns organic beings and mind, I am personally entirely convinced, and have every day reason to be so convinced. As regards the evolution of inorganic matter, I suspect that to be true also; but I take it on the evidence of my friends, the physicists. I accept it in general; partly on what others tell me, partly on my own estimate of probabilities.

REALISM

The other proposition of which I spoke, and upon which any sound system of philosophy, in my estimation, must rest, is the doctrine of scientific realism.

Among metaphysicians there are two great schools—realists and idealists. Idealists believe that this world and sensible universe are simply a series of pictures depending on the peculiar characteristics of the human mind—a projection of the mind as it were, upon itself, or states of mind which express themselves in the various forms of activity, which the realists call the material world. The idealists do not believe in atoms; they do not believe in measurable matter. They say that what appear to us as centers of matter, material bodies,—or, reducing matter down to its last terms, atoms of matter,—are nothing but centers of energy, where forces of various kinds come together, and form points of pressure. And that is what they say gives the impression of something material.

On the other hand the realists believe that matter is real; or, in other words, that it has three dimensions, length, breadth and thickness. They do not know a great deal about this matter. It is a subject involved in difficulties. A great many realists are also atomists. They believe that the condition of matter is that of fine subdivisions into minute parts, which are not further divided. The atoms are not ultimate in the metaphysical sense, which will allow you to divide anything *ad infinitum*. Such discussions are not profitable nor in favor with scientific persons, although mathematicians

are fond of them. Scientists believe that there is an ultimate condition of matter which is imperceptible to vision, whether there be any atoms, or whether matter be homogeneous, or whether there be a homogeneous basis in which atomic matter is mingled.

But whether matter be subdivided into atoms and molecules or not, it is my purpose to say that the hypotheses which I have to present to you are based upon a belief in the actual existence of material substance, or substance which has three dimensions, length, breadth and thickness. And my own state of mind and mental constitution is such that when a person undertakes to deal with the laws of nature in any way at all, without admitting that premise, it appears to me that he has nothing whatever to talk about, and that his mind is occupied with nonentities. I cannot understand the idealistic universe. It is true, as the idealists insist, that our means of ascertaining the properties of this supposed matter are imperfect. No one of them goes very far, and all of them may become disordered and lead us astray. It is true that Prof. Langley has discovered new forms of energy which nothing but a bolometer can detect. But all this does not prove that there is nothing moving when there is motion; nothing there when we meet resistance; and nothing the matter when we suffer pain.

On the other hand, while there are many persons

whose minds are constituted like my own on this question, they frequently fail to realize the essential nature of mind.

MIND

Now mind, according to the idealists, requires no substance, and yet it exists. According to the realists, mind is a property of matter or substance. It is a quality displayed by some kinds of matter. And such an hypothesis explains many of the characteristic peculiarities of mind. It explains the difficulties which mind has in doing certain things. The impossibility it finds of doing certain things, and the facility with which it does other things can be explained in this way. It explains a great many of the sufferings which mind has to endure through its body which it inhabits. In fact it is apparently complete in its explanation of all the phenomena which are recorded in the field of mind, with the exception of the most primitive, the very primary axioms of all, which we have to admit without understanding, because we cannot view them from a standpoint outside of them.

The quality which is the raw material of mind, out of which all kinds of minds—little and great, weak and simple, great or complex, are manufactured, is consciousness, or sensibility, or sensation; real sensation, and not in any obscure or doubtful sense. No sensibility is

meant which implies that the person who is supposed to be sensible is unconscious—this is a contradiction in terms, or self-contradictory language, and yet a kind of talk in which some metaphysicians indulge occasionally. But I mean by consciousness what the physiologists mean by it, namely, a state of knowing that we exist. What are the various modes of knowing you exist? There are the sense of touch, the sense of temperature, the special senses, taste, hearing, smell, etc. So also the sense of thinking. Of course, the thinking species of consciousness is the most complex and the highest; and the general sense of touch or of temperature, one or the other, perhaps both, form the lowest kind of consciousness.

RELATIONS OF MIND TO MATTER

Now, the question as to the proof or disproof to our minds of the existence of Deity depends on what we can discover as to the relations of mind to matter, as to the extent which mind can control matter; and, on the other hand, as to the extent to which mind is itself a slave or servant of matter. If mind is absolutely and totally the slave of unintelligent matter; if mind is to go where matter bids, and is to serve when matter orders—if mind has no freedom whatever to do anything whatso-

ever, excepting as matter dictates and decides under all circumstances, then we may anticipate extinction at any moment, and we have no ground whatever for belief in the continued existence of any personal Being of any kind or sort whatsoever. To this conclusion some students have been led, and a good many persons have followed them. But I cannot but think that this result is due to an imperfect apprehension of the facts. This is especially the case with specialists who are exclusively occupied with some studies, especially the study of physiology. This, most of all pursuits, is the one best calculated to impress people with the subordination of mind to matter. This is because the observer in physiology—perhaps a doctor of medicine, constantly sees the extraordinary effects of disordered conditions of matter upon the mind of his patients. He sees death approaching and arriving without the power of resistance on the part of himself or his patient. He sees insanity supervene upon slight disorders of the digestive organs, and mental impotence depend on the presence of a clot of foreign matter on the brain. The department of study that is pursued by these specialists is exceedingly well calculated to produce that kind of belief in their minds.

But there are other departments of science which throw a very different light on this whole matter. The discoveries made in another branch of physiology have

aided very greatly, indicating the fact that mind really can control matter to some extent and make it serve its purpose, and act as its servant, to do its bidding and be bent to the designs of intelligence. And that is the point to which I will next call your attention.

The investigations as to the mental processes which are involved in our everyday life have resulted in bringing out one thing very satisfactorily. We receive impressions at various points from the surface of our body, which are conveyed by direct lines of communication, nervous threads, to the portion of the brain where each is registered, and from which point it is reflected to another part of the brain. It is registered in the posterior part of the main hemispheres of the brain, is reflected to the front of the hemispheres, and then from that point it is reflected back again towards the executive organs of the body, passing through the striate body and nerves to the muscles, which thereupon, if the case require it, contract so as to perform some act. A person whose finger is burned immediately jerks the hand away from the fire. A person who receives a letter takes the other hand and opens it. And so acts, directed according to the necessities of the case, follow stimuli, as we all know, every minute of our lives, not only among men, but also among animals.

Now, the question is, how is it that a stimulus or line of disturbance which enters the body, can apparently

issue from it in such a different shape from that in which it went into it? When it goes in, the person who received it has nothing whatever to do with it. He takes it. He is passive. When it goes out, the person from whom it issues has had a great deal to do with it.

It goes out of him saturated with intelligence. It has been clearly demonstrated that the current of activity or energy receives the stamp of individuality of the person, while it is in the anterior part of the great hemisphere of the brain. There the line of energy appears to be submitted to a disturbance which is a deflection, a process of turning or directing, and that turning or directing is an exhibition of what is called a design. A designed act, of course, is an act which is performed with the evident intention of accomplishing some result, some end or other. In accordance with the intelligence of that design, we discriminate as to the intelligence of the person who acts. Persons of a lower order of intelligence design an act of a certain kind; and those who have a higher degree of intelligence perform an act which indicates their superior character. We perceive that they have the better machine for the conversion of this line of energy into intelligent direction for a definite purpose.

Now, you know that one of the great foundation principles of all science at the present day is that something

can never be made out of nothing. Force, that is, action, or motion, cannot be caused excepting by the appropriation and modification of some pre-existent activity or motion. In this same way matter cannot be created. That is to say, something cannot be made out of nothing. But matter can be used. It can be converted, or "manufactured" by complication; it can be put to purposes, intelligently or otherwise. Therefore, it is not pretended that when a line of energy issues from a man with an intelligent intent about it to perform some intelligent act, that that energy has been created by that man or in that man's brain. But it is not only pretended, but proved, that that external energy passes into the consciousness of the man and becomes *his* motive and *his* energy; that that energy receives within him a stamp or a turn or direction, that energy cannot receive under any other circumstances known to us.

It is not, however, necessary to suppose that the energy that is expressed by an act is exactly the same in amount as that which enters the brain in the form of stimulus. A lesser amount of energy may cause the *release* of a greater amount which is in a stored condition; or may set in motion activities which produce a greater amount, by conversion from some other source. Such a case is seen in muscular contraction, which, on slight nervous stimulation, gets its energy

from chemical decomposition of tissue; like a great fire which is started by striking a match.

Such a deflection of energy is unknown in the inorganic world. No such thing occurs in the ordinary operations of light, heat, electricity, or any of the forms of inorganic energy. It is only known to exist in living things, and only in those that some time or other have been conscious. It is not necessary that the being should be conscious at the moment this intelligent act is performed. If the consciousness has existed at some former period, so that the lesson was learned, and so the machine was constructed by which this action should be performed, it will go on even though the creature be in a totally unconscious state at the time. It is a well-known fact of physiology that those acts which are performed in an unconscious state display the same design as those which are performed in a conscious state of intelligence. All animals, as well as men, display this phenomenon, sometimes when they have not even a brain at the end of their body to direct the act. It is then performed by the spinal cord. These are exhibitions of the law of consciousness, viz.: that when a movement has become a habit, consciousness is no longer necessary to it. And this is because a machine for performing the act has been created.

Will is the name usually given to the process of diverting

this stream of energy to its purpose. But it must not be confounded with free-will, which is a totally different matter. Free-will implies the spontaneous action of the being, apart from all pre-existent causes. The will here described is a strict servant of causes which already exist in the man's brain, as an immediate or remote consequence of the nature of the man's thoughts or emotions. These give it its stamp and its direction. It is, therefore, not free; but it is nevertheless mental power. It is a power which in itself belongs to the realm of mind, and we may also say to the realm of the supersensuous, which some people call the supernatural. I do not like the word "supernatural," because all is in accordance with one system of laws which we may call natural laws. But we call it supersensuous, because we do not see or perceive the process as we do many non-mental ones.

CONSCIOUSNESS

Now let consciousness be for a moment the subject of our thought. There are a good many people who really do not accurately and clearly in their own minds distinguish consciousness from other phenomena of nature as they ought to do. Consciousness, sensation, self-knowledge, is like nothing else. It has essentially no affinity with anything else. It is by itself, although it is tied to

matter as a property of matter. This is more exact than to say that matter is its vehicle. To us, consciousness is all. Nevertheless, we could not exist without our physical basis, our matter. But matter by itself is of little interest to us. If we are unconscious, we care nothing for it.

But consciousness is not only entirely distinct in its essential nature from matter, but it is also totally distinct from energy or motion. The whole universe and all phenomena of it, are expressed in the three words. Matter, tridimensional, is the basis. Energy is the motion of that matter. Thirdly, consciousness is the mind which some of that matter exhibits. These are three totally independent, distinct, uncommingleable, absolutely and essentially separate subjects of thought. But that clear distinction as regards the utter and total distinction of consciousness from all other thinkable things may not be sufficiently held and maintained by persons who are engaged especially in the study of material science or dealing with material things. Whereas, on the other hand, persons who are addicted to speculation, to indulging their imagination, which has but little contact with the actual world, are very apt to treat of matter as an unimportant thing, and to pay but little attention to the inseparable bond which will bind them forever to a material basis.

Now, it is evident, so far as regards creatures which are or have been conscious, that in the laws which their being presents, they express a realm or kingdom of mind. They present us with a view of a part or fragment of it. The question of great importance is whether mind is confined in its range; whether it only exists in these beings, as we see them. Because if that were the case, we might have our doubts as to the nature of a great mind which is generally supposed to exist, and which is ordinarily called supreme.

THE NATURE OF LIVING MATTER

It is an important fact that the material basis of consciousness in organic beings owes its existence apparently to something more than ordinary inorganic forces. It is true that all living things are made of a chemical substance of slightly varying constitution, but of general identity, called protoplasm (it has chemical names also) which will not hold itself together by chemical affinity alone. The chemical energy which sustains this substance is not sufficiently strong to hold it together if it be not living. As soon as the life is out of it, ordinarily at least, it decomposes. As chemical energies are incapable of holding its elements together, there is clearly something which is requisite to its

existence as a chemical body besides chemical force. This is a fact which never has been denied, and cannot be denied.

There is also another very interesting fact, that this so-called protoplasm has the very remarkable power, as you know, of taking the inorganic substances of the world and manufacturing them into more protoplasm and other highly complicated substances, and of making cells to store them in. Here again we observe the control of a living substance over chemical energy.

Now, if an organic body be not interfered with by anything that has life, the process is in the other direction. Under all circumstances the habit of chemical energy is to form comparatively simple substances, not complicated substances, and to form combinations that are either solids, or which, in the process of making, dissipate energy in the form of heat. That is to say, as you all know, it is a principle of chemistry that when gases form a liquid, heat is lost—given out. That is, energy is lost or dissipated. It is not lost entirely, but leaves that particular locality or object, or process. Also when liquids combine to form solids, of course energy is dissipated again. Heat goes out. And there is this universal tendency in all natural chemical processes, not interfered with by life, to run, as they say, down hill, or to undergo a retrograde metamorphosis. That is the impress of death,

very comparable to the death of living things. Life, or whatever it is, dissipates, and the organism decomposes, and is resolved into chemical things, inorganic things, and therefore dead things. Oxygen, and to a less degree, carbonic acid gas and sulphuric acid, have been constantly attacking inorganic substances, and forming immense masses of solid substances. The matter becomes dead, so to speak.

By this process heat is dissipated into space wherever there is matter, and the result must be as has been prophesied by some of our physicist friends of the evolutionary school, our future death by freezing. And unless there be some means of recovery, it is the fate of the solar system at least, that the whole of its energy will be dissipated, and all its matter will ultimately be solid, or be frozen up tight, which is very different from the general impression, which is, that we shall all be burned up.

Now, you see what an exceedingly important part life plays in the inorganic world as well as the organic world. Just how great that part is we are not yet in a condition to know. But it is clearly the one power which opposes this running-down and dissipation, by lifting matter up into a combination which will sustain more life, and by storing energy in the earth, to become available under the direction of intelligent beings. Thus

we know that there are immense deposits of materials in the crust of the earth, which have been put down there by vegetable life. Immense deposits of coal, of oil, etc., have been placed there entirely by the action of vegetation. This may not be universally true. There are geologists who say that the basalt dykes on the coast of Greenland bear carbon which never could have been alive. That is an exceptional case. It may be true, I do not know. But in any case, the vast majority of carbon, including the hydrocarbons, coal-oil deposits, and gases which are now of such vast importance—all these things are the result of the action of life. Much silver and gold in the earth's crust have been deposited by living seaweed. Enormous bodies of flint all over the world, mostly solid quartzose rocks, are nothing but shells from minute sea-weeds which have gathered silex whilst in the sea-water, and have deposited it in this form. Many immense limestone beds in all countries are nothing but pulverized coral and mollusk skeletons. The materials from which life obtained these substances were found already in an inorganic condition in the earth or waters about them. There is where they originally got them. But these vast formations clearly indicate the great part that life has played in those portions of the earth which appear to us now to be farthest from the realm of life itself.

CONSCIOUSNESS IN EVOLUTION

I will now refer to another phase of the action of consciousness as regards the evolution of living things, in some detail. I will speak more particularly of the origin of vertebrate animals, of which man is a part, and at the head of which he stands, and will therefore throw some light upon the question of the origin of man, which is also generally included in theology. The general succession and genealogy of the highest vertebrate animals is being made out. In many cases the history is tolerably clear. The genealogy of man is not entirely known. In some details it is already determined. We have traced backwards various series of species of animals through geological ages, converging to common types or forms, and new discoveries enable us to trace these back again to still more generalized forms. So we go back from the immediate to the intermediate. Or going from below upwards, in the order of the strata of the earth's crust, and the succession of time, we have a gradual ramification, branching out like a tree, until at the apex of one of the branches we find our own species. At the apex of the other branches we find other animals with their various executive organs, organs of speed, or for seizing prey or devouring it, etc., forming lines of special perfection.

But our own line is that one in which intelligence has

reached its highest point, and in which we can have therefore the greatest amount of pleasure in existence, as well as, of course, also, the greatest amount of pain.

These other lines have taken to less honorable, less noble branches of occupation. They have become very expert in other ways. It is a curious fact, and the science of palæontology proves it, that our own structure is primitive among mammalia. We have stopped stock still at a point which a great part of the higher mammalia have long since abandoned, as regards our general physical organism. But when it comes to the matter of brains, we have made a most enormous progress. In this respect our ancestors had acquired some superiority over the other mammalia, at least four or five or more geological epochs back. This has been proven satisfactorily to everybody's understanding. The point of the matter, however, in regard to the action of life and of sensation in this business, is this, that the sensation was there first. Mind was one at the start; and all this evolution has been simply due to the active exercise of mentality, or of mental qualities. The various structures that we find, brains, or lungs, or arms, or teeth, or stomachs, or any other part of the organization which we may observe to define various groups of higher or lower animals, have become capable of what they are through energetic use, oftentimes extremely hard use,

according to the severity of the struggle for existence. And it is perfectly evident that the movements which these creatures have performed, and which have produced the structures which we find, have been due to the sensations of the animals—the sensations of heat, cold or hunger. They have worked for it, dug for it, flown for it, swum for it. Trying to maintain themselves under sensations of an antagonistic character, and to hold their own, they have developed their energies and structures.

If we go back to the very simplest animal, a drop of jelly, known as the amœba, we find that these very small beings display some mental qualities in a rudimental condition without any structure at all worth mentioning; so it is evident that consciousness was there first, and the structure came afterwards, through activity. And the successive stages can be traced from the amœba to the higher animals, and from one structure to another. We can find that the result of the whole thing is to serve the purpose of sensitive beings. Every act which they do is a designed act, and their own design runs through them all, from the bottom up.

This design, of course, has often been observed and dwelt upon by theologians and scientific persons; but the exact source of it has not been so well understood. There is no kind of doubt but that it is in proportion to

the sensibility, or mental activity of the animal, as it is found within its own organization.

We get from this history further proof of the control of mind over matter; for the capacity of animals or living things to create their own organs in accordance with their own immediate necessities, and thus to enable themselves to acquire their modes of life as we find them to-day, is clearly an evidence of this power. Thus science proves that mind is the creator of organisms, under the conditions furnished by the environment. This is the first step in evidence of the existence of a great mind, since the lesser minds must have been derived from some common source like the structures which display them.

INORGANIC EVOLUTION

But I strongly suspect if the subject is investigated further, when the facts come to be known, that it will be found that all the creation, all the objects which we find in the world, have been the result of a process of activity, which was originally characterized by design within itself; and if there has been an active design in the thing which did the work, that therefore everything was once alive. It is a hazardous statement to make, a hazardous proposition to introduce at any time, that inorganic matter has been alive. But it seems to follow from the answer to the question—How was

the first protoplasm created? We have seen that plants manufacture protoplasm and other organic substances out of inorganic matter in spite of the opposition of chemical energy. But protoplasm is necessary to the process. Whence then was the first protoplasm derived? The only answer is, that some form of matter other than protoplasm exhibits, or did exhibit, a form of energy which can control chemism. That this ancestral form of life-energy was conscious is of course uncertain, but the facts are as strongly in favor of the origin of unconsciousness from consciousness as the reverse. Here is the point of evolution where the non-protoplasmic passed to the protoplasmic consciousness, if anywhere. The only conceivable source of resistance to the chemical energy, which could have existed then, is that which exists now, the essential of vitality. And this essential is consciousness, through which alone mind controls matter.

This is not a totally new hypothesis to the philosopher. The doubt has been where the life was, whether exterior to matter or within it. But scientific investigation will probably eventuate in a clear showing that the primitive form of matter was conscious, and that it by its movements has produced the various types of matter which we now have; and that these various types of matter have contributed to change these peculiar kinds of

motion which we have in the universe, into the distinct types of energy which are now called by different names. The study of physics is now so advanced that the energies are now many of them shown to be modifications of the same thing, as for instance the species of radiant energy; heat, light, actinism, etc., while others seem to form other groups of which we already know something. Thus the electrical group of energies including magnetism, is an important one. As far as we know, it is totally distinct from the radiant type, and in one of its modes it resembles that which traverses the nerves. All physiologists know how electricity will produce certain results that nothing else but nerve force will produce. So this is a curious group, and its characters are of that intermediate sort which has often guided evolutionists to hypotheses which they have been ultimately able to demonstrate by actual facts. But it is a proposition which I simply suggest as something to work about.

There probably has been in the inorganic field, as in the organic, a primitive consciousness in matter, which was lost from such matter as acquired habits ("cryptopnoy"). The simplest habit would be formed first, (*i. e.* the simplest energy,) and other energies would follow, each differing from its predecessors, because of the increasing complexity of its environment.

The primitive consciousness would remain as the essential of "life," in such matter as had not become totally automatic.

EVIDENCE OF A SUPREME MIND

The demonstration of the primitive function of mind, so far as it has gone, must be of the greatest possible interest and the greatest possible service to persons who perceive its wide bearing. There are some persons who do not care for that sort of demonstration. Perhaps they are happy. I would not interfere with the happiness of that man who is satisfied without the privilege of knowing the truth. For my own part, I have occasion to be extremely grateful that I live in a time when the evidence for such truth is accessible. Although some parts of the argument have not been unknown to some of the best theologians,—it has not been in such shape as to constitute a demonstration, nor in a state to be acceptable to science; it has been made probable, and nothing more. But when it comes to take the form of an absolute proposition with certain demonstration, we have done what Job said could not be done; namely, by searching we have found out God. Job's expression is very correct provided it is meant that you cannot touch, see or handle the Supreme Being by searching with the ordinary senses

of the body. And this is a rational way in which we may apprehend his Being and believe in Him; and the consequences of such understanding must be to increase our belief in the stability of the Universe, and in our own chances of a future life.

IMMORTALITY

Of course, if we accept the great truth of the control of mind over matter, we have grounds for suspecting, or rather we have grounds for believing positively that mind has had one or more physical bases prior to the origin of that material which we now find in living beings. If this be true, so that we have reason for believing that other forms of matter may support a mentality, we have further evidence for the existence of a Supreme Being. And on the same supposition, immortality becomes possible to the eye of science, which it cannot be without it. Science has had little to say on the subject of immortality. The subject has been out of our reach. The evidence of science heretofore has been at least *nil*, one way or the other. Many specialists and thinkers have sunk back in despair at the darkness which is in front of them, the depth of the mists which obscure that whole subject from the eye of the investigator. And some have been willing to assume, in a field in which we

know nothing, that there could be no such thing as immortality, and that it is impossible.

Now, I am free to say, that that is not a scientific attitude. If the evidence be *nil*, it is not safe to assume anything in that direction more than in any other department of the unknown. One has no right to assume that there are no stars between those that are visible to us. It was thought at one time that there were no stars beyond those visible to the naked eye. But when the power of the telescope was increased, millions of stars appeared that revolve in the realms of space. So in the realms of intelligence, we have no right to assume the impossibility of a future existence. The position of the agnostic is the safe one in that direction, and it is one of honest scientific inquiry.

But in the view which I have presented regarding the evidence for the existence of a Supreme Being, as dependent on the extent of the power of mind, we have at the same time a right to hope for some kind of immortality on a basis which is sound and solid.

FREEDOM AND NECESSITY

So I will pass from that proposition, as there is little more to say about it, and will refer to another question briefly ; time will not permit of more—that is the matter

of liberty and necessity, or the extent to which mind is free to act spontaneously; the extent of its power on the one hand, and its limits and bounds and necessities it is under, on the other hand. And I state at once that as an outcome and result of this kind of study, it must be admitted that mind of any kind or sort whatever, great or small, simple or otherwise, has limits or bounds which it cannot pass. There are certain necessities which it cannot overcome ; and that being the case, we have an explanation of the otherwise inexplicable amount of misery and suffering there is in the world.

Of course it is necessary to believe with the realistic philosophy, that a great mind from which lesser minds may have been derived, has a material basis. This at once involves it in a certain amount of restraint, and indicates the necessity of time as an element in its action. I put the proposition in a simple form. It can be put in other words so as to be less unpleasant. But that is plain language, and I prefer to put it in that way.

You can very readily conceive, at least I think you can, that it is impossible, absolutely impossible, for any being whatsoever to take perfectly solid unchangeable pieces of matter of different shapes, say trihedra and cubes, and put them together in such a way that there shall be no spaces between them. They must all be of a kind or else they will not fit. And if they are absolutely

solid and unchangeable, there is nothing whatsoever that will make them fit and not leave cavities between. It is also perfectly clear and certain that absolutely incompressible pieces of matter cannot occupy the same space at the same time. It is perfectly evident that no power whatsoever can make that come to pass. But supposing that these difficulties do not actually exist in consequence of the constitution of matter, it is not possible that there should be any constitution of matter of which some such difficulties would not be a concomitant.

There are also impossibilities in the field of pure mind. You will very easily understand some of them at least. And one of them is this: If a good being has a design to develop or cause to progress the mind and character and conduct of a stupid, or intelligent, but comparatively ignorant being, which being is not disposed to exert himself more than he absolutely has to, and who likes to amuse himself, enjoy himself, and play rather than work, it is absolutely impossible for that end and aim to be attained without the use of suffering or pain. Pain is the thing that makes people get up and get about their business and exercise their faculties. Pain has been the teacher of all sensitive beings. The lower creation has to do all that it does do under the stimulus of the suffering produced by the natural instincts, and

the memory of it, and their growth has been substantially from this cause, of which hunger was the first phase. Hunger has driven the animal to activity; hunger has driven the primitive plants to a large percentage of the activities they once displayed. This and that thing they do for the reason that they must supply their wants. Hunger has still very important relations to the very highest of all animals, the human race. A great many of the human race are so far intelligent that they do not allow hunger to catch up with them. They keep well ahead. They talk about the wolf at the door, although they very industriously keep him a long way off.

There are other things, however, in man, that is, in his higher organization, which constitute sensibility to suffering. And these are the things which keep him growing and developing, by making him go; otherwise he would sink back into a state of indolence and self-indulgence. He would rapidly lose by disuse his noble faculties. Hence, it is that all protection to any given set of people, or any prolonged deliverance from energetic employment of their faculties is a curse and not a blessing. Hence it is that privileged classes are unfortunate, and not to be envied in any shape or way. For the greatest of all evils for mankind is idleness, indolence, or the disuse of faculties. Wrong use of faculties is better, for then men discover the wrong, and

learn by suffering; they find out they should not act in this way, and so try some other way. The man that never acts at all is hopeless, and I fear he will disappear altogether from the universe.

As regards the question of liberty and the force of necessity, I cannot stop to say any more, because I presume the time has expired which has been allowed me. The subject is most troublesome and difficult. It is the despair of many thinkers, and is one which no man can comfortably undertake for himself unless he is willing to lie down with it, and stick to it.

But I will say that if there was perfect liberty on the part of the Mind of the universe, it is probable that some things would not happen that do happen. Some things happen because it cannot be helped. And therefore, you must not find fault until we know a little more than we do. Some of these things, however, it is practicable to explain. That matter of pain is clear. But there are some other things which are more difficult yet, and which are a great trial to the minds of many people and require a large exercise of faith.

EVOLUTION OF MORALS

Finally, there is one question that ought to be included in any theology; I mean an explanation of a cause for the development of good conduct between man and man.

That is to say the foundation of ethical development or progress in morals, covering by the term morals, the whole ground of justice between man and man in all respects and of all kinds whatsoever.

I will say here that ordinary metaphysical science and evolutionary science have confirmed completely the ideas which were brought into the world long ago by Bentham and Hobbes, that have been the anxiety of the theologian to this day. Yet, nevertheless, these principles, so far as they go, must undoubtedly be accepted as right, namely, that the social relations between men in their organizations where they live, are at the bottom of their growth in all respects; that the mutual pressure each man causes towards his fellowmen with regard to his conduct towards him has the effect of gradually training him into a course of proper conduct towards others, and in that way through a long course of ages, the habit of acting honestly and properly towards our fellow beings has been developed, and that it has become a part of character to combine the knowledge of what is right, belonging to the rational faculties, with the disposition to do right, which belongs to the benevolent faculties. These two sides of character have been developed by use into the habit of so acting; and the acts which men perform naturally follow the organized character they possess.

Of course this development has at the present day only progressed in certain ways. If eternal vigilance is the price of liberty, it is also the price of the development of morals. The community should always be alive to this fact, and continue to exercise that pressure which will banish all kinds of wrong-doing, so that they may continue the process until affairs be carried on in a much less immoral manner than they are at present.

There is no doubt that if these matters of conduct in society are not taken up as they come along, some members of society will have to bear the "lazy man's load"; that is to say, they will have to carry the whole thing in a heap. That is a very terrible job, and takes the form of unjust laws, and then of rebellions, of foreign wars, with disasters of various kinds, to persons and property; of revolutions of society, which overturn the liberties of thousands and millions of people—a state of affairs which is most to be regretted, and especially to be hoped may never overtake this country.

As regards this evolution of morals, it must be remembered right here, however, that this development from the inter-action of mind in society will only progress to a certain point. It cannot be expected to go beyond the point where moral conduct is about equivalent to, or about on an equality as regards its action with the

amount of selfishness which is necessary to be retained by people to maintain their physical existence. A certain amount of selfishness is necessary, in order to maintain one's position as a living being in the world, to get enough to eat and have enough clothes to wear. Of course, it goes very much beyond that in many people. They want to accumulate a great deal more of property, the material basis of life, than is necessary for them.

If they have properly organized minds to know what to do with it, it is a very good thing to get. But if they are purely selfish in the matter, it only does them good by keeping their faculties actively employed. I say that this selfish nature is absolutely essential to the preservation of mankind, in view of the fact that we are bound to physical surroundings, with structures we have to maintain up to the degree and point of comfortable living ; so that the self-development of morals will not reach the point of extinction of that amount of selfishness which necessity has left in human nature. And development can never get entirely over that one necessity, and that one necessity will balance the moral nature in such a way that I imagine in the long run there are a great many people, perhaps the majority of people, whose characters will be somewhat at a see-saw between two sets of motives, a sort of a balance between the

two things, between selfish action exclusively—for "me" and "mine"—on the one side, and for the good of some one else or of the community on the other. At the present day the preponderance is greatly on the side of the scale of activity for "me" and "mine" and "us"; but with an evolution in which the struggle for existence is not too severe, we shall have the other side weighed down. But that it will ever get beyond a condition of equilibrium under the action of natural forces, is not very likely. How far that will be satisfactory as an end of development is a matter of grave doubt. It is true that morality does not consist in the absence of selfishness, but rather in the harmonious interaction of social forces. But it is very questionable whether selfishness can be so opposed by principle as to produce a character always so careful of the rights of others, as to conform to the idea of righteousness. It could be at best but a result of the labor of ages, for which an imperfect race may not desire to wait. And the past shows that the process is a relentless conflict in which evil must be allowed to destroy itself, which it will certainly do if let alone. But it takes too long. If there be any shorter way to achieve so desirable a result as moral elevation, we will not hesitate to hail it as a blessing and to support it by every means in our power. The existing systems have merits, but they must throw away

fictions so soon as they discover them to be such, remembering that untruth is immorality.

To recapitulate. The evidence which sustains a belief in a great Mind now invisible to us, and in a possible future life, is based on the knowledge that we possess of the control of mind over matter. This is derived from three sources: First; from the design displayed by the energy of living things. Second; from the control by living over chemical energy. Third; from the directive power of mind over the process of Evolution.

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